

Claims

1. A method to obtain a wheat plant with improved yield properties wherein said method consists in the generation of genetic variability and said method comprises the following stages:
 - a. the construction of a wheat plant F1 by means of the crossing of two parents genetically distant and of opposed industrial qualities;
 - b. the permanent application throughout the whole development of the inflorescence of said plant of a high concentration of sunlight with no spectrum filter by means of 6 mirrored surfaces each one of 1.00 meter long by 0.50 meter high; said mirrored surfaces are mounted over supports in a way that the mirrors point out by their center towards a stick positioned in an equidistant form in the middle of the plot with the plants;
 - c. the germination of the resulting seeds and the analysis of the descendants for the search of stable variants of a different chromosomal number.
2. A method to obtain a wheat plant according to claim 1, wherein a stable wheat variant is obtained, said variant presents crown root, high production capacity of fertile shoots, long and wide leaves and in some cases finely serrated, leaves having a central vein, shoot capacity, perennial habit, high level of grain productivity, high protein level and industrial qualities similar to the hard wheat of best quality, that qualify to be designated as a new type of wheat commonly called Megawheat.
3. A method to obtain a wheat plant according to any of the claims 1 or 2, wherein the productivity level exceeds by 60% the production of conventional wheat.
4. A method to obtain a wheat plant according to any of the previous claims, wherein seeds with a weight over 55 g, preferably over 70 g are obtained.
5. A method to obtain a wheat plant according to any of the previous claims, wherein the step of the analysis of the descendants consists in the assisted selection of genetic markers and comprises the evaluation of the DNA of the plants; mapping with one or more of the following SSR genetic markers psp3100; gwm095; wmo264; gdm072; barc134; gwm130 and wherein said markers are placed in the positions according to the following detail:

marker	location			Allele size (bp)
	chromosome	genome	arm	
psp3100	1	B	length	181,67
gwm095	2	A	central	112,45
wmc264	3	A	length	137,38
gdm072	3	D	short	117,59
barc134	6	B	length	191,90
gwm130	7	D	short	114,06

6. A method to obtain a wheat plant according to any of the previous claims wherein a wheat plant is obtained designated Megawheat.
7. A plant or part of a wheat plant obtained according to the method of claim 1, wherein said plant or part of a wheat plant has a crown root, high production capacity of fertile shoots, long and wide leaves and in some cases finely serrated, leaves having a central vein, shoot capacity, perennial habit, high level of grain productivity, high protein level and industrial qualities similar to the hard wheat of best quality, that qualify to be designated as a new type of wheat commonly called Megawheat.
8. A plant or part of a wheat plant obtained according to the method of any of the claims 1 or 2, wherein in the genetic analysis by means of assisted selection of genetic markers, the following SSR genetic markers psp3100; gwm095; wmo264; gdm072; barc134; gwm130 are located in the positions detailed in the following table:

marker	location			Allele size (bp)
	Chromosome	genome	arm	
psp3100	1	B	length	181,67
gwm095	2	A	central	112,45
wmc264	3	A	length	137,38
gdm072	3	D	short	117,59
barc134	6	B	length	191,90
gwm130	7	D	short	114,06

9. A wheat plant obtained according to the method of any of the claims 1 through 6, wherein said plant belongs to the selected species between *Triticum aestivum*, *T. turgidum*, *T. timopheevii*, *T. monococcum*, *T. zhukovskyi* and *T. urartu* and hybrids of the same, preferably *Triticum aestivum*.
10. A seed or part of a seed wherein said seed or part of a seed is obtained from a wheat plant according to any of the claims 7 to 9.
11. Pollen wherein said pollen is obtained from a wheat plant according to any of the claims 7 to 9.
12. A plant ovule wherein said plant ovule is obtained from a wheat plant according to any of the claims 7 to 9.
13. A wheat plant wherein said wheat plant is obtained from a seed or from parts of plants according to any of the claims 10 to 12.
14. A tissue culture of regenerated cells wherein said tissue culture of regenerated cells is produced from the wheat plant according to any of the claims 7 to 9.
15. A protoplast culture of regenerated cells wherein said protoplast culture of regenerated cells is produced from the tissue culture claimed in claim 14.
16. A wheat plant F1 wherein said wheat plant is obtained by the crossing of plants according to the claims 7 to 9 with any plant of the tribe Triticeae.
17. A plant wherein said plant is the descendant of the plants F1 of claim 16.
18. A hybrid plant wherein said hybrid plant is obtained by any procedure from the plants according to any of the claims 7 to 9.
19. A plant resistant to pesticides wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.
20. A plant resistant to insects wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.
21. A plant resistant to diseases wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.
22. A plant with a reduced phytate content wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.
23. A plant with a modified fatty acid metabolism wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.

24. A plant with waxy starch or starch with an amylase increase wherein said plant is obtained by any procedure from the plants according to any of the claims 7 to 9.

25. A method to generate genetic variability in wheat, preferably *Triticum aestivum*, wherein said method comprises the steps of:

- 5 a. the construction of a wheat plant F1 by means of the crossing of two parents genetically distant and of opposed industrial qualities;
- b. the permanent application through the whole development of the inflorescence of said plant of a high concentration of sunlight without spectrum filtration;
- 10 c. the germination of the resulting seeds and the analysis of the descendants for the search of stable variants of different chromosomal number.